DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-002710
Date Inspected: 25-May-2008

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 630
OSM Departure Time: 1530
Location: Shanghai, China

CWI Name:	Hu Wei Qing and Lvliqing			**CWI Present:**	☑ Yes	☐ No	
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: OBG and SAS Tower Fabrication

Summary of Items Observed:

On this date, Caltrans Office of Structural Material (OSM) Quality Assurance (QA) Inspector Joselito Lizardo was present as requested to perform observations on the fabrication of Orthotropic Box Girder (OBG) and SAS Tower at Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China.

The QA Inspector has randomly observed the following activities on these Bays mentioned below;

Bay # 2: 77 and 114M Tower Mock-ups, Plate Cutting, Rolling
This QA Inspector observed two Tower Mock-ups were idle, cutting machine were continuing on 65mm thick plate various sizes and shapes. On separate location, this QA observed rolling of 60mm thick plate marked P223B that seems skin plate inside vertical stiffener. On horizontal milling machine, one 65mm thick plates with 450mm width and 7630mm long marked P322B seen complete and three 75mm thick plates marked P277, P775 and P249 were seen in-progress on beveling and appears to be intended for tower diaphragms.

Bay 3-OBG side/bottom panel:
The QA Inspector randomly observed ZPMC welder operator ID Number 048801 utilizing the Flux Cored arc Welding (FCAW) Process in the 2F (Horizontal Fillet) Position with gantry mounted welding apparatus and ZPMC Weld Procedure Specification (WPS) WPS-B-T-2132-3, to weld WT-Rib stiffener on Bottom Plate BP088-001 Weld Joint (WJ) Numbers 016/034. The QA Inspector randomly observed ZPMC CWI Zhang Bao Lei monitoring weld parameters. The QA Inspector also randomly monitored weld parameters and recorded them as follows: 306 amps, 30.7 volts and 440mm per min travel speed. The weld parameters appeared to comply with contract requirements.

The QA Inspector randomly observed ZPMC welder Han Xiaofeng , and Du Henghua ID number 037779 utilizing the SMAW Process in the 2F (Horizontal Fillet) Position and THJ506Fe-1 4.0mm electrode, to tack weld WT-Rib stiffener to Bottom Plates BP086-001-062~067, BP059-001-001~006 and BP-140-001-056~067. The QA Inspector randomly observed ZPMC CWI Wu Ming Kai monitoring weld parameters. Weld parameters appeared to comply with contract requirements.

This QA Inspector observed bottom plate BP113-001-001~006 clamped at gantry #1. In this bottom panel, the tack welds noted ground/cleaned, fit-up of WT rib stiffener to plate acceptable, and paint removed on weld surfaces. The same goes to bottom plate BP032-011-001~006, which is just getting ready to be clamped.

Bay 4 Tower Diaphragm
The QA Inspector randomly observed ZPMC welder ID Number 046830, utilizing the Submerged Arc Welding (SAW) Process in the 1G (Flat Groove) Position with ZPMC WPS WPS-B-T-3221-B-U3c-S-1, to weld the fill and cover pass on butt splices of Tower Diaphragm Sub-Assemblies. The QA Inspector randomly observed ZPMC CWI Ye Yong Jun, monitoring weld parameters. The QA Inspector also randomly monitored weld parameters during welding of NSD1-SA333A/B and recorded them as follows: 614 amps, 30.4 volts with a travel speed of 490 mm per minute. Weld parameters appeared to comply with contract requirements. This QA also observed two ZPMC welders Li Zhaoqian ID Number 048810and Li Shuqiang, utilizing the FCAW Process in the 3G (Vertical Groove) Position with ZPMC WPS WPS-B-T-2233-B-U3-F, to weld heavy plate splice butt joints 9A and 4B respectively on tower diaphragm ring SSD1-SA27A/B. The QA Inspector randomly observed ZPMC CWI Zhao Che Sun monitoring weld parameters. The QA Inspector also randomly monitored one set of weld parameters and recorded them as follows: 212 amps, 26.5 volts with a travel speed of 118 mm per minute. The weld parameters appeared to comply with contract requirements.
On one of the tower diaphragm plate splice butt joint marked WSD1-SA317-3B/4B, ABF Inspector informed Caltrans about 200mm long cracked that they have noted after grinding the back gouged weld. The location was at the edge on one end of the SAW welded splice joint. See photo for additional information.

Bay 7-OBG - Floor Beam Sub Assembly:

The QA Inspector randomly observed ZPMC welder Liu Xie ID number 066236, utilizing the FCAW Process in the 2F (Horizontal Fillet) Position with ZPMC WPS WPS-B-T-2132-3, to weld web to flange on floor beam Sub-Assembly FB003-034-005. The QA Inspector randomly observed ZPMC CWI Hu Wei Qing monitoring weld parameters and noted as follows; 307 Amps, 30.0Volts and 440mm/min travel speed. The weld parameters appeared to comply with contract requirements. The QA Inspector randomly observed ZPMC welder Xie Jin Xia ID Number 048038, utilizing the FCAW Process in the 1G (Flat Groove) Position with ZPMC WPS WPS-B-T-2231-B-U2-F-1, to weld plate splice butt joint on floor beam Sub-Assembly FB039-001-078.

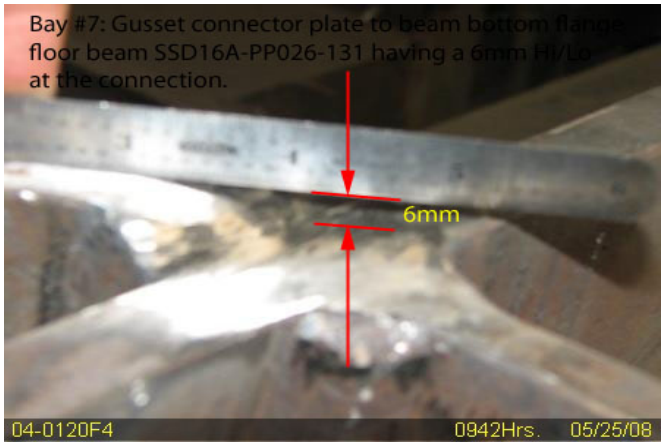
The QA Inspector randomly observed ZPMC Welder ID Number 066761, utilizing the Shielded Metal Arc Welding (SMAW) Process with TL508 4.0mm diameter electrode in the 2F (Horizontal Fillet) Position with ZPMC WPS WPS-B-P-2112, to tack weld flange to the web of Floor Beam Sub-Assembly FB016-006 weld numbers 011/012, 015/016. The QA Inspector randomly observed ZPMC QC Xiang Feng monitoring weld parameters. Weld parameters appeared to comply with contract requirements. Tack welding was also noted on plate splice butt joint on unequal thickness using weld detail WD20A on floor beam FB028-002-101.

On gusset connector plate to beam bottom flange of SSA16-PP026-131 and SSD18-PP028-007, this QA observed a 6mm Hi/Lo. The width of flange and the connector plate has discrepancy of 4mm so the Hi/Lo occurred. This QA informed ABF Inspector David Lorrey about this and told QA he will look into this.

All other activities observed that relate to welding include preheating of floor beam plate FB039-001-079 splice butt joint prior FCAW welding, bevel cutting to 30 degree on unequal thickness splice butt joint of floor beam FB035-001 and bevel grinding on these bevel cut splice plates.

Bay 8: Tower Diaphragms
The QA Inspector randomly observed ZPMC welder Xu Pei Pei ID Number 050303, utilizing the SAW Process in the 1G (Flat Groove) Position with ZPMC WPS WPS-B-T-3221-B-U3c-S-1, to weld the cover pass on butt splices of Tower Diaphragm WSD1-SA226-10B. The QA Inspector randomly observed ZPMC CWI Lvliqing monitoring weld parameters. The QA Inspector also randomly monitored weld parameters and recorded them as follows: 613 amps, 30.7 volts with a travel speed of 480 mm per minute. Weld parameters appeared to comply with contract requirements.

The QA Inspector randomly observed ZPMC welder ID Number 066243, utilizing the SMAW Process in the 3G (Horizontal Groove) Position and electrode TL-508 with ZPMC WPS WPS-B-P-2113-B-U3b, to tack weld heavy plate splice butt joint for tower diaphragm ring WSD1-SA226. The welder observed preheating the plate prior tack welding and recorded 151Amps with 25volts parameter. Other welding activities observed were bevel cutting of these bent heavy plates for diaphragm ring, grinding/cleaning of groove on splice joint SSD1-SA248-1B/2B after back gouging and carbon arcing/removal of run off tab on completed welds of diaphragm ring ESD1-SA226.



Summary of Conversations:
This QA informed ABF Inspector David Lorrey regarding 6mm Hi/Lo that need to be fixed on gusset connector plate to beam bottom flange of skewed CJP connection of SSD16A-PP026-131. See photo above.

Comments
This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

WELDING INSPECTION REPORT

(Continued Page 4 of 4)

Inspected By:	Lizardo,Joselito	Quality Assurance Inspector
Reviewed By:	Cochran,Jim	QA Reviewer